AMENDMENTS TO THE CLAIMS

Claim 1 (currently amended): An apparatus for use with an optical sensor, said apparatus comprising:

a source emitting radiation at an emission wavelength;

a wavelength meter coupled to monitor said emission wavelength;

means for varying said emission wavelength coupled to said wavelength meter;

an optical path guiding said radiation to said optical sensor and guiding a response radiation from said optical sensor;

a detector generating a response signal to said response radiation; and

an analysis module which analyzes said response signal and determines ~~determining~~ therefrom ~~said~~ a physical parameter by:

detecting peaks in said response signal by applying a threshold level;

identifying a full width half maximum of each peak;

identifying a centroid of each peak from one full width half maximum; and

making a fit to each peak.

Claim 2 (previously presented): The apparatus of claim 1, wherein said source is a laser.

Claim 3 (previously presented): The apparatus of claim 2, wherein said laser is selected from the group consisting of External Cavity Diode lasers, Distributed Bragg Reflector lasers, and fiber lasers.

Claim 4 (currently amended): The apparatus of claim 1, wherein said fit is ~~analysis module fits~~ a best fit curve ~~to said response signal~~.

Claim 5 (original): The apparatus of claim 1, wherein said optical sensor is selected from the group consisting of Bragg Grating and Fabry-Perot elements.

Claim 6 (original): The apparatus of claim 5, wherein said optical path comprises an optical fiber and said Bragg Grating is a Fiber Bragg Grating.

Claim 7 (previously presented): The apparatus of claim 1, wherein said means for varying said emission wavelength comprises a laser tuner.

Claim 8 (previously presented): The apparatus of claim 7, wherein said laser tuner comprises a scanner for scanning said emission wavelength.

Claim 9 (previously presented): The apparatus of claim 7, wherein said laser tuner comprises a sweeper for sweeping said emission wavelength.

Claim 10 (original): The apparatus of claim 1, wherein said optical path comprises a waveguide.

Claim 11 (previously presented): The apparatus of claim 1, further comprising a tap for tapping said radiation and coupling said radiation to said wavelength meter for monitoring said emission wavelength.

Claim 12 (previously presented): A method for determining a physical parameter affecting an optical sensor, said method comprising:

emitting a radiation having an emission wavelength;

providing an optical path for said radiation to said optical sensor and for a response radiation from said optical sensor;

varying said emission wavelength;

generating a response signal from said response radiation; and

determining said physical parameter by:

detecting peaks in said response signal by applying a threshold level;

identifying a full width half maximum of each peak;

identifying a centroid of each peak from the full width half maximum; and

making a fit to each peak.

Claim 13 (original): The method of claim 12, wherein said optical sensor produces said response radiation by a varying a property of said radiation, said property being selected from the group consisting of transmittance, reflectance, absorbance and polarization.

Claim 14 (previously presented): The method of claim 12, wherein said emission wavelength is varied continuously.

Claim 15 (previously presented): The method of claim 14, wherein said emission wavelength is swept.

Claim 16 (previously presented): The method of claim 12, wherein said emission wavelength is varied discontinuously.

Claim 17 (previously presented): The method of claim 16, wherein said emission wavelength is scanned.

Claim 18 (cancelled): The method of claim 12, wherein said fitting comprises a best curve fit of said response signal.

Claim 19 (cancelled): The method of claim 18, wherein said fitting further comprises an analysis method selected from the group consisting of peak detection, Full Width Half Maximum (FWHM) determination, centroid detection.

Claim 20 (previously presented): The method of claim 12, wherein said making a fit comprises making a fit selected from the group consisting of a polynomial fit, a Lorentzian fit and a Gaussian fit.

Claim 21 (original): The method of claim 12, wherein said physical parameter is selected from the group consisting of temperature, strain and pressure.

Claim 22 (previously presented): The method of claim 12, further comprising tapping said radiation and monitoring said emission wavelength.